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# INSTALLATION RESTORATION PROGRAM

## FURTHER ACTION DECISION DOCUMENT FOR SITES 6 AND 7 FINAL



MICHIGAN AIR NATIONAL GUARD  
ALPENA COMBAT READINESS TRAINING CENTER  
ALPENA, MICHIGAN

September 1997

Air National Guard  
Andrews AFB, Maryland

19971203 161

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## ACRONYM LIST

ANGRC	Air National Guard Readiness Center
ARARs	Applicable or Relevant and Appropriate Requirements
BRA	Baseline Risk Assessment
COCs	chemicals of concern
CRTC	Combat Readiness Training Center
DOD	Department of Defense
FS	Feasibility Study
GSI	Groundwater/Surface Water Interface
HQ	hazard quotient
IRP	Installation Restoration Program
MDEQ	Michigan Department of Environmental Quality
MERA	Michigan Environmental Response Act
MIANG	Michigan Air National Guard
RAOs	remedial action objectives
RI	remedial investigation
SI	site investigation

## **1.0 INTRODUCTION**

This final decision document presents the rationale for the limited action response proposed for the Michigan Air National Guard's (MIANG's) Alpena Combat Readiness Training Center (CRTC) Site 6, the former landfill and Site 7, the first fire training area. The draft final decision document was reviewed by the Michigan Department of Environmental Quality (MDEQ) and approved in the August 19, 1997 letter provided in Appendix A. This document is part of the U.S. Department of Defense's (DOD's) Installation Restoration Program (IRP).

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## 2.0 SITE DESCRIPTION AND HISTORY

The MIANG Alpena CRTC is located at the Alpena County Regional Airport, approximately 5 miles west of the city of Alpena (Figure 1). The Alpena County Airport occupies approximately 3,000 acres of land. MIANG leases and has exclusive rights to approximately 600 acres of that property for the Alpena CRTC.

The Alpena CRTC has a long history of military and training use. Since 1952, the Alpena CRTC has primarily been used as a training facility. Training takes place year-round with the greatest influx of personnel occurring during the months of April through September. The Alpena CRTC has had no assigned aircraft since the mid-1950s, except for a period between 1964 and 1972, when a detachment of aircraft and personnel were on 24-hour intercept alert.

Sites 6 and 7 have been combined and are considered as one site due to their proximity. Site 6 was reportedly used for disposal of waste paints, spent solvents, oils, and waste fuel, in addition to general refuse. The RI Report indicates that historical photographs show burial of crushed drums. Site 7 was used for fire training exercises from 1952 until 1965. An average of ten fire training exercises were conducted each year between 1952 and 1954. After 1954, the frequency of exercises decreased to approximately two per year. During each training exercise 150 to 500 gal of waste fuels, waste oils, and spent solvents were burned. The fire area lacked any formal containment structures, such as a concrete pad or berm. Figure 2 shows the features of Site 6 and Site 7.





TREES

TREES

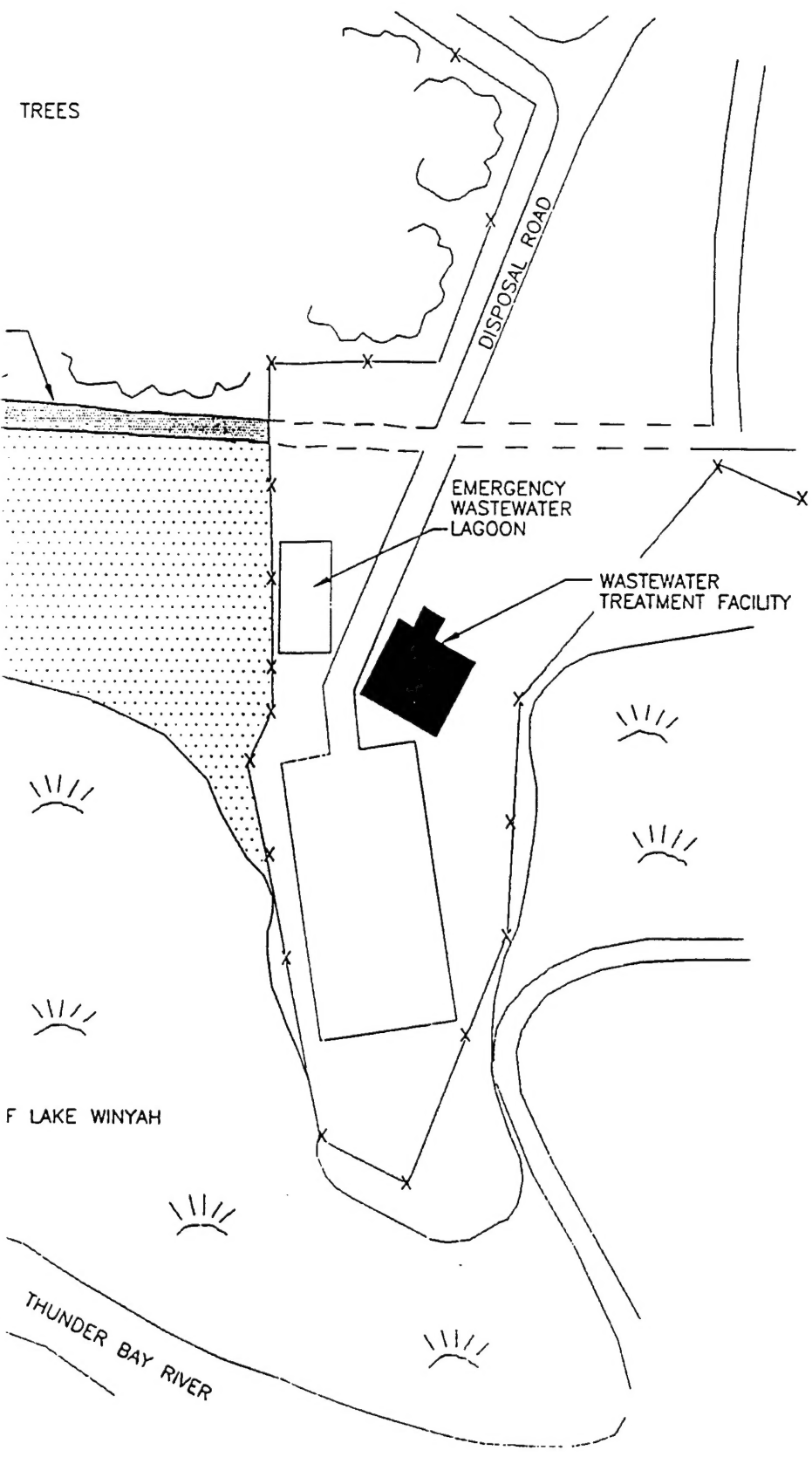
SITE 7

SITE 6


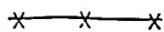




BANK/EDGE OF FILL

BACKWATER AREA OF LAKE WINYAH

THUNDER BAY RIVER



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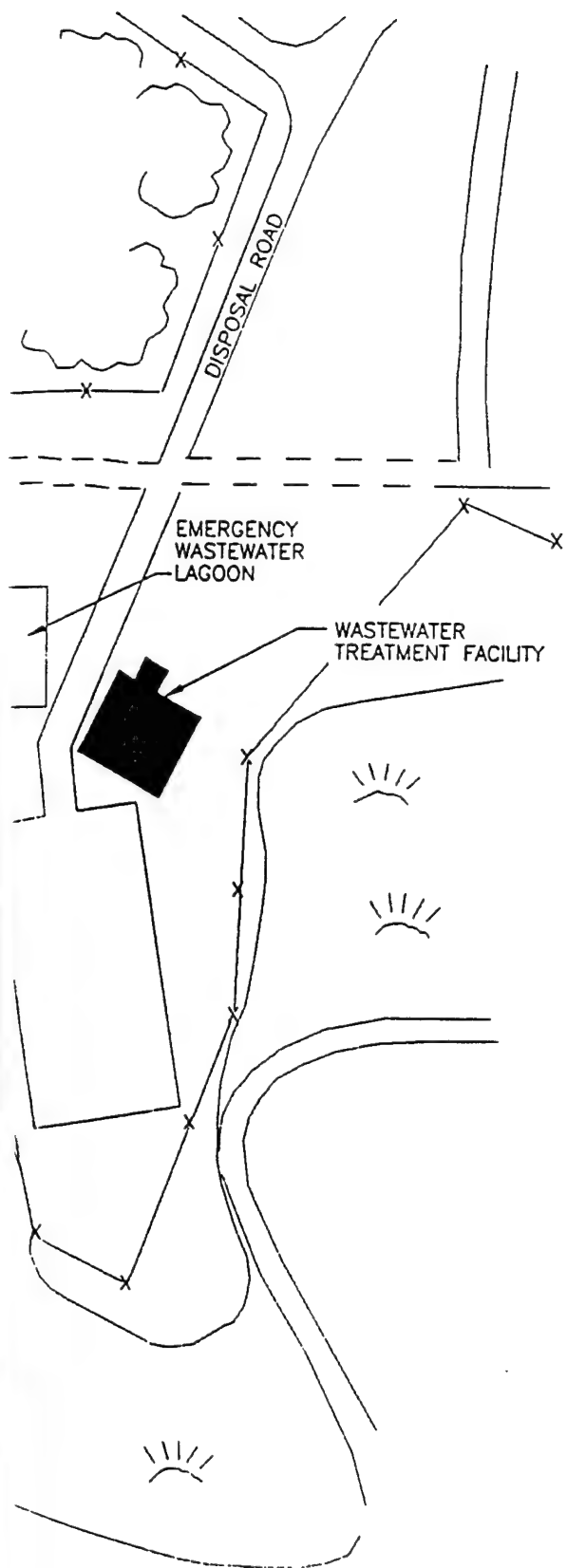
-  BUILDING
-  DEER FENCE
-  MARSH AREAS
-  TREES
-  SITE 6 STUDY AREA
-  SITE 7 STUDY AREA

MICHIGAN AIR NATIONAL GUARD  
ALPENA CRTC  
ALPENA, MICHIGAN


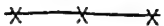




**SITE 6 AND SITE 7  
SITE FEATURES MAP**

**FIGURE 2**





## LEGEND

-  BUILDING
-  DEER FENCE
-  MARSH AREAS
-  TREES
-  SITE 6 STUDY AREA
-  SITE 7 STUDY AREA



MICHIGAN AIR NATIONAL GUARD  
ALPENA CRTG  
ALPENA, MICHIGAN

SITE 6 AND SITE 7  
SITE FEATURES MAP

FIGURE 2



**MONTGOMERY WATSON**

### 3.0 SUMMARY OF INVESTIGATION

Our investigative work at Sites 6 and 7 included two phases: the site investigation (SI) portion was completed between 1987 and 1991, and the remedial investigation was completed between 1992 and 1993. For the SI field work at Sites 6 and 7, we completed soil vapor monitoring surveys, magnetic surveys, installation of monitoring wells, and soil, sediment, and groundwater sampling. The RI work included surface geophysical surveys and test pit excavations in 1992. We also completed the installation of additional monitoring wells, and soil and groundwater sampling activities as part of the RI.

Figure 2-5 in the Final Feasibility Study (FS) (Montgomery Watson, 1996) shows the sampling locations for Sites 6 and 7. The SI Report and the RI Report (The Earth Technology Corporation, 1995) include the details on the sampling, including the depth of each sample, contamination concentrations, the depth of the contamination, and the methods used in collecting and analyzing the samples. The following sections are a discussion of the chemicals of concern (COCs) identified in the FS for groundwater, soil, and sediment at Sites 6 and 7.

#### 3.1 Groundwater

Constituents in groundwater samples from Sites 6 and 7 were compared with Applicable or Relevant and Appropriate Requirements (ARARs) to identify COCs. ARARs considered in the FS include:

- Generic Industrial Cleanup Criteria for health based drinking water value (Industrial Drinking Water Values) as outlined in the Michigan Environmental Response Act (MERA), Operational Memorandum #14, Revision 2, June 1995.
- Generic Industrial Groundwater/Surface Water Interface (GSI) as outlined in the MERA, Operational Memorandum #14, Revision 2, June 1995.

Based on the information presented in the RI Report, organic contaminants were present in samples from one well (LF6MW3) during field sampling events in 1987, 1988, and 1991 at levels above the Industrial Drinking Water Values. No organic constituents were present above Industrial Drinking Water Values in any wells, including LF6MW3, during the most recent sampling round (1993). No inorganic constituents were present at concentrations exceeding the Industrial Drinking Water Values during any of the sampling rounds.

Based on the analysis in the FS, there is no contamination that requires remediation in the groundwater at Sites 6 and 7.

### **3.2 Soil and Sediment**

Constituents in soil and sediment samples from Sites 6 and 7 were compared with ARARs to identify COCs. ARARs considered in the FS include:

- Generic Industrial Cleanup Criteria for soil direct contact (Industrial Direct Contact Values) as outlined in the MERA, Operational Memorandum #14, Revision 2, June 1995.
- Generic Industrial Cleanup Criteria for soil considered protective of groundwater as outlined in the MERA, Operational Memorandum #14, Revision 2, June 1995.

Based on information presented in the RI Report, the concentrations of contaminants present in soil samples collected at Sites 6 and 7 do not exceed the Industrial Direct Contact Values.

Two contaminants were present in Sites 6 and 7 soil samples at concentrations exceeding Default Background Values. Selenium was present in soil samples from LF6MW1, LF6SB1, and FF7SB3. Lead was present in soil samples from LF6SB3 and LF6SB5. These constituents were not present in the groundwater samples taken at Sites 6 and 7 at levels exceeding Industrial Drinking Water Values. Specifically, no selenium was present above Industrial Drinking Water Values in the groundwater samples collected at LF6MW1. No selenium was present above Industrial Drinking Water Values in LF6MW4 (located immediately downgradient of LF6SB1) or

in LF6MW6 (located approximately 50 ft downgradient of FF7SB3). In addition, no lead was present in samples collected from LF6MW10 or LF6MW9 (located immediately downgradient of LF6SB3 and LF6SB5, respectively). Therefore, the soil at Sites 6 and 7 is considered protective of groundwater.

The sediment samples at Sites 6 and 7 did not contain contaminants in excess of ARARs.

Based on the site analysis in the FS, there are no contaminants that require remediation in the soil or sediments at Sites 6 and 7.

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#### 4.0 RISK ASSESSMENT

A baseline risk assessment (BRA) was performed during the RI to assess the risks posed to human health and the environment by the contamination at the Alpena CRTC sites. This section summarizes the BRA results for Sites 6 and 7. The complete BRA analysis for Sites 6 and 7 is presented in the RI Report.

No current complete exposure pathways were identified in the RI Report BRA for Sites 6 and 7. Future complete exposure pathways include Thunder Bay River surface water pathways (ingestion, dermal contact, and fish consumption) and Lake Winyah backwater sediment pathways (dermal contact and ingestion). Carcinogenic and non-carcinogenic exposures were evaluated for all scenarios in the RI Report. No future risk above  $1 \times 10^{-5}$  was calculated for any of the future complete exposure pathways except the sediment pathways. The results of the BRA indicate that exposure pathways involving the sediment in the backwater areas of Lake Winyah (ingestion and dermal contact) exceed the  $1 \times 10^{-5}$  acceptable level for both the adult and child receptors. This is based on the concentrations in sediment sample LF6SD4. An evaluation of sediment risk estimates indicates that this conclusion was overstated.

The RI Report BRA was completed using U.S. Environmental Protection Agency (USEPA) models and exposure scenarios. Since the BRA was published, Michigan has amended Public Act (PA) 451, Part 201. The new amendments use different exposure models and exposure values to determine risks. Op Memo #8, Revision 4, June 1995 and Op Memo #14, Revision 2, June 1995, provide a table of predetermined concentrations for individual chemicals that would have an exposure risk of  $1 \times 10^{-5}$ . A comparison can be made between the USEPA model used in the completion of the BRA and the MDEQ approved risk model by evaluating the concentrations of contaminants in the sediment sample (LF6SD4). The concentrations and the known risk can be ratioed and the ratios added. This is a standard method used by industrial hygienists to compare different calculation methods. An added ratio value of one or greater represents a potential exposure risk in excess of  $1 \times 10^{-5}$ . The concentrations at LF6SD4 were ratioed against values in Op Memo #8 for each chemical; the results are shown in Table 1. The summation of the ratios is



0.35. This value is less than 1 and indicates that there are no chemical-specific future cancer risks, pathway cancer risks, or total exposure cancer risk which exist above the  $1 \times 10^{-5}$  acceptable level for the sediment exposure pathways in the backwater area of Lake Winyah for both the adult and child receptors. This method uses the more conservative Residential Criteria in its evaluation, and it conservatively assumes that all chemicals target the same organs.

All chemical specific hazard quotients (HQs) are below 1 for both the adult and child receptors indicating a low potential for adverse non-carcinogenic health effects.

**Table 1**  
**Risk Analysis Evaluation for Act 451**  
**Alpena Combat Readiness Training Center**  
**Alpena, Michigan**

Compound	Detected Concentrations for Sediment Sample LF6SD4	Residential Exposure Risk Values from PA 451	Ratio Factor Detected Concentration/ Exposure Risk Values
	ppb <sup>(a)</sup>	ppb	
Anthracene	460	4.20E+08	0.0000
Benzo(a)anthracene	450	1.40E+04	0.0321
Benzo(a)pyrene	320	1.40E+03	0.2286
Benzo(b)fluoranthene	690	1.40E+04	0.0493
Benzo(ghi)perylene	61	1.50E+06	0.0000
Benzo(k)fluoranthene	690	1.40E+05	0.0049
Butyl benzyl phthalate	66	6.80E+07	0.0000
Chrysene	430	1.70E+04	0.0253
Di-n-butylphthalate	64	5.10E+07	0.0000
Fluoranthene	460	5.10E+07	0.0000
Indeno(1,2,3-cd)pyrene	120	1.40E+04	0.0086
Phenanthrene	460	1.50E+06	0.0003
Pyrene	420	3.20E+07	0.0000
<b>Sum of Risk Ratio</b>			<b>0.3492</b>

(a) ppb=part per billion

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## 5.0 SELECTION OF REMEDIAL ALTERNATIVE

The FS considers two alternatives for remediation of Sites 6 and 7. The remedial alternatives analyzed for Sites 6 and 7 include:

- No Action: The No Action Alternative serves as a baseline for comparison with other remedial alternatives. Under this alternative, no remedial actions would be completed at Sites 6 and 7 to contain or reduce the contaminants in the soil, sediment, or groundwater.
- Limited Action Alternative for Groundwater: Under the Limited Action Alternative the contaminants in the groundwater would not be contained or treated, but allowed to naturally attenuate. Monitoring of groundwater on a quarterly basis, with three rounds per year, would be completed to support the information provided in the RI Report. Institutional controls would be implemented to prevent groundwater use while monitoring was taking place.

The Limited Action Alternative is considered the alternative of choice for Sites 6 and 7. This alternative will provide overall protection of human health and the environment. The Limited Action Alternative will meet the Remedial Action Objectives (RAOs) and ARARs for soil, sediment, and groundwater at Sites 6 and 7. The soil has been shown to be protective of groundwater since the contaminants present in soil samples were not present at levels exceeding Industrial Drinking Water Values in groundwater samples from the sites. There have been four rounds of groundwater sampling at the sites. The most recent round of sampling (1993) showed no contaminants at levels in excess of the Industrial Drinking Water Values. The Limited Action Alternative involves the continued monitoring of groundwater.

The No Action Alternative will meet RAOs and ARARs for Site 6 and 7 groundwater, soil, and sediment. Even though the site currently meets the RAOs, only the most recent round of groundwater sampling showed no constituents at levels exceeding the Industrial Drinking Water

Values. Due to the historical activities that occurred at these sites, it will be reasonable to complete additional sampling to verify that groundwater is not impacted.

#### **5.1 Selected Alternative: Limited Action Alternative**

Specifically, The Limited Action Alternative will involve groundwater sampling. Samples will be analyzed for volatile organic compounds (VOCs), semi-volatile organics (SVOCs), and metals. Following the sampling, a final closure report will be prepared to document sampling activities and results

While sampling activities are taking place, institutional controls will be implemented by the MIANG to prevent use of groundwater at the site. The groundwater at the Alpena CRTC is not currently used as a drinking source, therefore this constraint will not be an issue.

## 6.0 CONCLUSION

Sites 6 and 7 were evaluated for potential contamination in soil, sediment, and groundwater due to past activities at the site. Based on the results of the field investigation, there is minimal contamination in the soil, sediment, and groundwater at Sites 6 and 7. There were no constituents present in excess of ARARs in the most recent sampling. The soil has been shown to be protective of groundwater since none of the constituents present in the soil sampling were in the groundwater samples in excess of Industrial Drinking Water Values.

Based on the most recent sampling, the RI Report concludes that the site does not pose a threat to human health or the environment. In addition, the site meets all RAOs and ARARs established in the FS, based on the most current round of sampling.

Due to the historical activities conducted at the site, the recommended alternative for the site involves monitoring of groundwater. A closure report will be prepared to document sampling and results. No additional remedial activities are anticipated, unless groundwater monitoring results show increases in contaminant levels.

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## 7.0 DECISION

On the basis of the findings at the Alpena CRTC Sites 6 and 7, there is no evidence of significant environmental contamination at the site. No active remediation will be conducted at the site, instead the site will be monitored through groundwater sampling. A final closure report will be prepared to document the results of the monitoring. Assuming that there are no increases in contaminant levels, the sites will be removed from further consideration in the IRP process and no further investigative or remedial activities will be conducted with regard to the sites following the submittal of the final closure report.

  
\_\_\_\_\_  
Chief, Environmental Division

7 Oct 97  
\_\_\_\_\_  
Date

-----  
Michigan Department of Environmental Quality

☐ Concur

☐ Non-Concur (Please provide reason)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date



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## 8.0 REFERENCES

Hazardous Materials Technical Center, 1985. *Installation Restoration Program Records Research: Phelps Collins Air National Guard Base, Alpena, Michigan.*

The Earth Technology Corporation, 1993. *Site Investigation Report, Combat Readiness Training Center, Michigan Air National Guard, Alpena County Regional Airport, Alpena, Michigan.*

The Earth Technology Corporation, 1995. *Final Remedial Investigation Report, Alpena Combat Readiness Training Center, Alpena County Regional Airport, Michigan Air National Guard, Alpena, Michigan.*

Montgomery Watson, 1996. *Final Feasibility Study, Alpena Combat Readiness Training Center Alpena, Alpena Michigan.*

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STATE OF MICHIGAN



JOHN ENGLER, Governor

DEPARTMENT OF ENVIRONMENTAL QUALITY

HOLLISTER BUILDING, PO BOX 30473, LANSING MI 48909-7973

INTERNET: [www.deq.state.mi.us](http://www.deq.state.mi.us)

RUSSELL J. HARDING, Director

REPLY TO:

ENVIRONMENTAL RESPONSE DIVISION  
KNAPPS CENTRE  
PO BOX 30425  
LANSING MI 48909-7925

August 19, 1997

Mr. Paul Wheeler  
ANGRC/CEVR  
3500 Fetchet Avenue  
Andrews AFB, Maryland 20762-5157

SUBJECT: Phelps Collins ANG, Alpena County

Dear Mr. Wheeler:

Staff from the Michigan Department of Environmental Quality (MDEQ) have reviewed the Installation Restoration Program, Draft Final Decision Documents, dated July 1996, for sites 1, 3, 5, 6, 7, 8, 9, and the Final Decision Documents for sites 11, 14, 15, and 16, which were dated May 1996. Staff have provided the following comments concerning the documents:

A "Limited Action Alternative" is approved for sites 1, 5, 6, 7, and 9 to monitor for exceedances of Groundwater Surfacewater Interface (GSI) criteria. The proposed alternative is to include the installation of wells (per the June 10, 1997 meeting minutes), quarterly sampling and institutional controls to prevent public exposure. Should exceedances of the GSI standard occur, a more aggressive remedial action may be requested for the site.

While the proposed monitoring addresses downgradient GSI concerns regarding the sites, additional sampling to verify that source area soils and groundwater are remediated are still needed prior to closure. It will be necessary to demonstrate that groundwater, in the source area as well as downgradient, does not exceed appropriate standards for a minimum period of one year, prior to closure. Institutional controls on the property will need to take into account all relevant exposure pathways as required under Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, 20118 (6(d(ii))).

The Decision Documents for sites 3 and 8 had proposed no action alternatives for the sites. It was agreed in our June 10, 1997 meeting that a limited amount of sampling will take place to verify previous sampling at the sites. Should the agreed upon sampling indicate that contamination is not present at the proposed locations, a no action alternative will be approved for the sites.

Staff are in concurrence with the "No further Action" decisions reached in the "Final Installation Restoration Program Decision Documents" prepared for sites 11, 14, 15, and 16. Based on the above referenced reports, the levels of contaminants which will remain in soils have been characterized and do not pose an unacceptable risk on the basis of standardized exposure assumptions and acceptable risk levels (Residential Cleanup Criteria), as described in the provisions of R 299.5709 to R299.5715 of the administrative rules of Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. The sites can be considered closed with regard to these contaminants.

August 19, 1997

In regards to the forthcoming sampling at the Phelps Collins ANG base, it is recommended that the Data Quality Objectives and the level of QA/QC used correspond to Level III (three) Data Quality. It is also recommended that the constituents of concern be expanded to include the reporting of all Method 8260 aromatics, plus dimethylbenzenes and solvents. In those areas where aviation gasoline may have been used, or lost, ethylene dibromide should be included in the analysis. PCB's should be included in at least one sampling event in the dump area. The QAPP should include specific information with regard to the analytical laboratory and procedures to be used.

Please notify MDEQ district staff when the proposed sampling is to take place. If you have any questions or need further information please feel free to contact Mr. Andy Stempky at 517-731-4920, or or you may contact me.

Sincerely,



Dan Schultz, Chief  
Field Operations Section  
Environmental Response Division  
517-241-7706

cc: Kimble, Alpena ANG  
Delaney, MDEQ  
Alford/Stempky/file, MDEQ  
c. file (aps)